

AMENDMENTS TO THE CLAIMS:

1-28. (Previously Cancelled)

29. (Currently Amended) A process for the hydrometallurgical processing of manganese containing materials, the process characterised by the combination of a manganese dioxide containing feedstock and an acidic solution to form an acidic a leach solution to be leached, and passing a volume of sulphur dioxide gas through that leach solution as the leaching agent, whereby the levels of dithionate ion generated in the leach solution are less than about 5g/l.

30. (Currently Amended) A process according to claim ~~1~~29, wherein the levels of dithionate ion generated in the leach solution are less than about 1g/l.

31. (Currently Amended) A process according to claim ~~1~~29, wherein the pH of the leach solution is maintained at less than about 1.5.

32. (Currently Amended) A process according to claim ~~1~~29, wherein the leach solution comprises a slurry of manganese dioxide containing material at a slurry density of less than about 10%w/v, less than about 120g/l manganese sulphate, a temperature of greater than about 95°C, and at a pH of less than about 1.5.

33. (Currently Amended) A process according to claim ~~429~~, wherein the manganese dioxide containing feedstock contains less than about 40% manganese.

34. (Currently Amended) A process according to claim ~~429~~, wherein the leach solution has an initial soluble iron concentration of greater than 4g/l.

35. (Currently Amended) A process according to claim ~~634~~, wherein the iron is in the form of ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$).

36. (Currently Amended) A process according to claim ~~429~~, wherein the ferrous concentration is maintained at a level below about 0.5g/l by providing an excess or residual amount of manganese dioxide in the slurry.

37. (Currently Amended) A process according to claim ~~429~~, wherein the ratio of ferric to ferrous is monitored at least at intervals throughout the leach to ensure an oxidation reduction potential (ORP) of 550mV, or above (vs Ag/AgCl reference electrode).

38. (Currently Amended) A process according to claim ~~429~~, wherein the sulphur dioxide gas is preferably passed through the leach solution over a period of at least 10

hours whereby up to about 95% of manganese dioxide is dissolved.

39. (Currently Amended) A process according to claim ~~4~~29, wherein the leach is conducted over a period of between about 10 to 15 hours.

40. (Currently Amended) A process according to claim ~~4~~29, wherein once a stoichiometric amount of sulphur dioxide has been added to the leach solution to achieve a 95% dissolution of the manganese dioxide present, the reaction is halted.

41. (Currently Amended) A process for the production of electrolytic manganese dioxide, the process characterised by a leach of a manganese dioxide containing feedstock ~~in acidic solution, through in~~ which a volume of sulphur dioxide gas as the leaching agent is passed through an acidic solution containing manganese dioxide, ~~and in which the~~ dithionate ion levels ~~are in said solution being~~ maintained at less than about 5g/l, the resulting leach solution being processed to provide an appropriate electrolyte that is passed to an electrowinning stage during which electrolytic manganese dioxide is deposited.

42. (Currently Amended) A process according to claim ~~4~~341, wherein the levels of dithionate ion generated in the leach solution are less than about 1g/l.

43. (Currently Amended) A process according to claim ~~13~~41, wherein the pH of the leach solution is maintained at less than about 1.5.

44. (Currently Amended) A process according to claim ~~13~~41, wherein the leach solution comprises a slurry of manganese dioxide containing material at a slurry density of less than about 10%w/v, less than about 120g/l manganese sulphate, a temperature of greater than about 95°C, and at a pH of less than about 1.5.

45. (Currently Amended) A process according to claim ~~13~~41, wherein the manganese dioxide containing feedstock contains less than 40% manganese.

46. (Currently Amended) A process according to claim ~~13~~41, wherein the leach solution has an initial soluble iron concentration of greater than 4g/l.

47. (Currently Amended) A process according to claim ~~18~~46, wherein the iron is in the form of ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$).

48. (Currently Amended) A process according to claim ~~13~~41, wherein the ferrous concentration is maintained at a level below about 0.5g/l by providing an excess or residual amount of manganese dioxide in the slurry.

49. (Currently Amended) A process according to claim ~~13~~41, wherein the ratio of ferric to ferrous is monitored throughout the leach to ensure an oxidation reduction potential (ORP) of 550mV, or above (vs Ag/AgCl reference electrode).

50. (Currently Amended) A process according to claim ~~13~~41, wherein the sulphur dioxide gas is passed through the leach solution over a period of at least 10 hours whereby up to about 95% of manganese dioxide is dissolved.

51. (Currently Amended) A process according to claim ~~13~~41, wherein the leach is conducted over a period of between about 10 to 15 hours.

52. (Currently Amended) A process according to claim ~~13~~41, wherein once a stoichiometric amount of sulphur dioxide has been added to the leach solution to achieve a 95% dissolution of the manganese dioxide present, the reaction is halted.

53. (Currently Amended) A process according to claim ~~13~~41, wherein the acidic solution used in the leach is at least in part comprised of return or spent sulphuric acid solution from the electrowinning stage.

54. (Currently Amended) A process according to claim ~~13~~41, wherein additional acid is added to the leach to ensure the pH remains less than about 1.5.